

Plastic Melt Waste Compactor Flight Demonstrator Payload (PFDP), Phase I

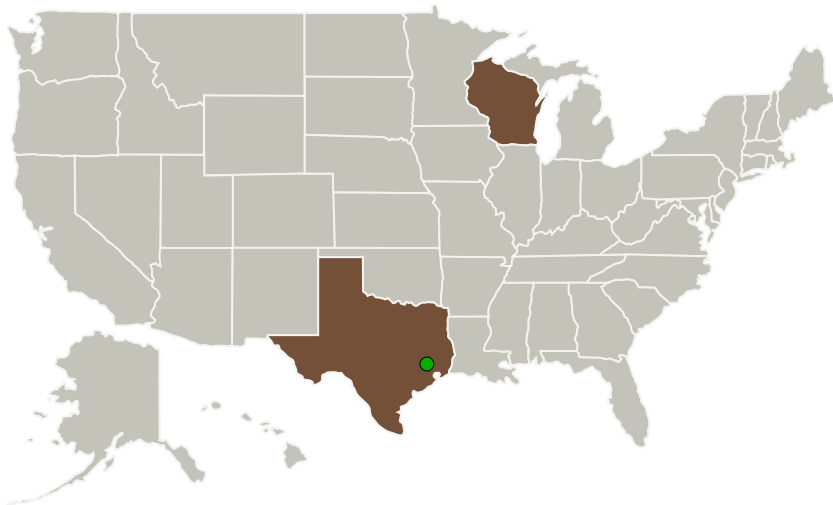
Completed Technology Project (2014 - 2014)



Project Introduction

The PMWC Flight Demonstrator Payload is a trash dewatering and volume reduction system that uses heat melt compaction to remove nearly 100% of water from trash while significantly reducing the volume. Recent advances have proven that ORBITEC's HEHO-PMWC is a viable technology for producing 16" square tiles for radiation protection. ORBITEC proposes to enhance the current SOA by repackaging all the components developed under prior SBIR efforts for ISS utilization and to create a test protocol for testing of the system on orbit for radiation effectiveness. The HEHO-PMWC and other Heat Melt Compactor technology has often been tested piecemeal. The proposed system will contain all systems including the primary processing chamber where the tiles are produced, any necessary avionics, and any necessary support equipment, which includes devices for air removal, contaminant and odor scrubbers, water degassers, and water handling. Plastic tiles output can be placed within the ISS or within the BEAM (ORBITEC has an excellent working relationship with Bigelow Aerospace). Any and all data gathered during on-orbit testing can be used by NASA to create the next generation of heat melt compaction technology for future manned spaceflight.

Primary U.S. Work Locations and Key Partners



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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Images	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	2
Technology Areas	3
Target Destinations	3

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Organizations Performing Work	Role	Type	Location
Sierra Nevada Corporation(SNC)	Lead Organization	Industry Women-Owned Small Business (WOSB)	Sparks, Nevada
● Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

Primary U.S. Work Locations

Texas	Wisconsin
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Project Transitions

**June 2014:** Project Start**December 2014:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/137423>)

Images

**Briefing Chart**Plastic Melt Waste Compactor Flight Demonstrator Payload (PFDP),
Phase I(<https://techport.nasa.gov/image/125898>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Sierra Nevada Corporation (SNC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

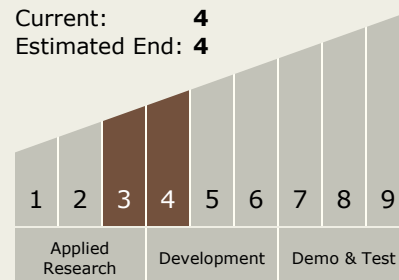
Program Manager:

Carlos Torrez

Principal Investigator:

Jeff R Johnson

Technology Maturity (TRL)

Start: **3**Current: **4**Estimated End: **4**

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Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
 - └ TX06.1 Environmental Control & Life Support Systems (ECLSS) and Habitation Systems
 - └ TX06.1.3 Waste Management

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System